

Exploring the Influence of Motivation and Platform Perceptions on Self-Regulated Learning in a Micro-Credential Module

Ima Shanaz Wahidin, Riza Emifazura Jaafar, Noryanne Amer,
Nor Tasnim Syahera Rasak*

Department of Business Management, Universiti Teknologi MARA, Tapah Campus, 35400 Tapah Road, Perak, Malaysia

ARTICLE INFO

Article history:

Received 18 October 2025

Revised 11 June 2026

Accepted 17 June 2026

Online first

Published 30 June 2026

Keywords:

Digital Learning

Higher Education

Micro-credential Learning

Platform Perception

Self-regulated Learning

Student Motivation

DOI:

10.24191/ijelhe.v21n2.21215

ABSTRACT

Micro-credentials have grown rapidly in higher education as short, competency-based learning pathways that certify specific skills through digital credentials. In Malaysia, initiatives led by the Ministry of Higher Education (MOHE) and the Malaysian Qualifications Agency (MQA) have positioned micro-credentials as a central component of the national lifelong learning agenda. While many higher education institutions have adopted micro-credentials to enhance employability and digital competencies, there remains limited empirical research on how Malaysian students engage with these platforms and the factors that influence their learning behaviours. This empirical study investigates the relationships among student motivation, platform perception, and self-regulated learning (SRL) behaviours among 213 students enrolled in Universiti Teknologi MARA's (UiTM) Kickstart Your Social Media Journey micro-credential course. Self-regulated learning refers to learners' ability to plan, monitor, and reflect on their learning progress to achieve academic goals. Employing a quantitative, cross-sectional design, data were collected through an online questionnaire and analysed using Pearson correlation and multiple regression analyses. Results reveal strong positive relationships among all three variables. Both motivation and platform perception significantly predict SRL, jointly explaining 51% of the variance in students' learning behaviours. Platform perception ($\beta = .386$) emerged as a slightly stronger predictor than motivation ($\beta = .362$), highlighting the importance of an engaging, intuitive, and supportive platform in fostering active, self-directed learning. The findings offer evidence-based insights into how Malaysian learners engage with micro-credential platforms and carry practical implications for institutions seeking to design more effective, student-centred digital learning environments.

*Corresponding author. E-mail address: ima90603@uitm.edu.my

1. INTRODUCTION

Micro-credentials have become an increasingly prominent feature of higher education, offering flexible, competency-based pathways that respond to workforce demands and the growing emphasis on lifelong learning (Ralston, 2021; McGreal & Olcott, 2022). In Malaysia, the adoption of micro-credentials has accelerated as universities aim to enhance graduate employability through stackable, industry-relevant qualifications (Ministry of Higher Education Malaysia, 2021). Universiti Teknologi MARA (UiTM), one of Malaysia's leading higher education institutions, has incorporated micro-credentials into its curriculum, including the Kickstart Your Social Media Journey platform, designed to develop students' digital marketing and social media competencies.

Despite growing institutional interest, there is limited empirical evidence on how students engage with micro-credential platforms and which factors shape their learning behaviours. Self-regulated learning (SRL) is recognised as critical for success in online and blended contexts, as it involves the ability to plan, monitor, and reflect on one's learning (Zimmerman, 2002; Broadbent & Packer, 2021). Students who employ SRL strategies such as goal setting, time management, and self-monitoring tend to achieve stronger learning outcomes and demonstrate greater persistence in digital learning environments (Anthonysamy et al., 2020; Barnard et al., 2009). However, how students' motivation and perceptions of platforms influence SRL in Malaysian micro-credential contexts is still underexplored.

1.1 Problem Statement

Despite the growing adoption of micro-credentials in Malaysia, empirical research on how students engage with these platforms remains scarce. Most existing studies focus on policy development or conceptual discussions rather than on the learner experience itself. As a result, there is limited understanding of the psychological and behavioural factors that contribute to successful learning in micro-credential environments.

Learner engagement in micro-credentials is influenced by two key dimensions: motivation and platform perception. Motivation plays a vital role in sustaining learning behaviours and persistence. When students are intrinsically motivated by curiosity or mastery, or extrinsically motivated by achievement or recognition, they are more likely to complete digital courses successfully (Ryan & Deci, 2000; Anthonysamy, 2021). Meanwhile, students' perceptions of the learning platform, including its usability, accessibility, and interactivity, can shape satisfaction and sustained participation (Teo, 2011; Al-Fraihat et al., 2020).

At the same time, students' ability to manage their own learning is equally important. Self-regulated learning (SRL) refers to the learner's capacity to plan, monitor, and evaluate their learning progress to achieve goals (Zimmerman, 2002). In digital contexts, SRL has been linked to higher achievement, persistence, and satisfaction (Barnard et al., 2009; Broadbent & Packer, 2021). However, research integrating these three elements- motivation, platform perception, and SRL in the Malaysian micro-credential context remains very limited. Therefore, empirical investigation is required to examine how students' motivation and perceptions of a micro-credential platform influence their SRL behaviours, thereby informing effective learning design and support mechanisms for UiTM students.

1.2 Research Objectives and Questions

Accordingly, this study aims to examine the relationships between motivation, platform perception, and SRL among students enrolled in UiTM's Kickstart Your Social Media Journey micro-credential course. Specifically, it seeks to:

- (i) Examine the relationships between students' motivation, platform perception, and SRL strategies;
- (ii) Determine the extent to which motivation and platform perception predict SRL behaviours; and
- (iii) Identify which factor more strongly influences students' engagement in SRL.

These objectives are addressed through the following research questions:

RQ1: What are the relationships between student motivation, platform perception, and self-regulated learning (SRL) in micro-credential courses?

RQ2: To what extent do motivation and platform perception jointly predict students' self-regulated learning behaviours?

RQ3: Which factor serves as a stronger predictor of self-regulated learning: motivation or platform perception?

By responding to these questions, the study seeks to provide an empirically grounded understanding for educators, instructional designers, and policymakers aiming to enhance learner engagement and self-regulated learning within Malaysian micro-credential programs.

2. RELATED WORKS

Micro-credentials have emerged as flexible, skills-based learning pathways that recognise specific competencies through short, modular courses and digital certification (Oliver, 2019; Brown et al., 2021). Universities worldwide are adopting micro-credentials to address evolving workforce demands and promote lifelong learning (McGreal & Olcott, 2022). In Malaysia, the Ministry of Higher Education (MOHE) and the Malaysian Qualifications Agency (MQA) have positioned micro-credentials as part of the national lifelong learning agenda, encouraging universities such as Universiti Teknologi MARA (UiTM) to embed them into their academic programs to enhance graduate employability (Ministry of Higher Education Malaysia, 2021; Malaysian Qualifications Agency, 2020). However, most existing studies have emphasised policy frameworks and institutional readiness, leaving limited empirical exploration of students' learning experiences and behavioural engagement in micro-credential environments.

Self-regulated learning (SRL) is widely regarded as one of the most reliable predictors of success in online and self-paced learning contexts (Zimmerman, 2002). Rather than treating SRL as a fixed trait, Zimmerman's (2002) cyclical model frames it as a dynamic process involving forethought (goal-setting and planning), performance (execution and monitoring), and self-reflection (evaluation and adjustment). Critically, each of these phases is shaped not only by the learner's own dispositions but also by environmental factors such as the affordances and constraints of the learning platform. Learners who regularly engage these strategies tend to outperform peers who rely on passive engagement, a pattern documented consistently across online higher education settings (Barnard et al., 2009; Broadbent & Packer, 2021; Anthonysamy et al., 2020). Despite this, most Malaysian studies on SRL have focused on conventional online platforms or blended learning contexts; micro-credential environments, with their distinctive short duration and competency-based structure, have received comparatively little empirical attention. The present study addresses this gap.

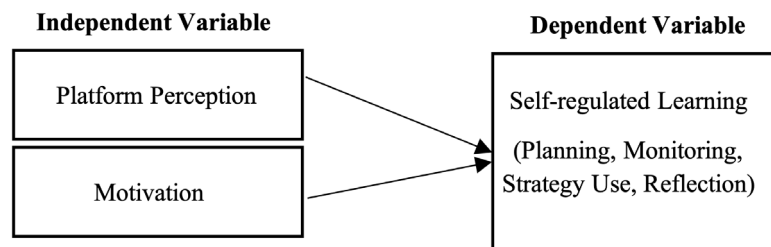
Motivation is another well-documented predictor of learning behaviour in digital environments. Ryan and Deci's (2000) Self-Determination Theory (SDT) distinguishes between intrinsic motivation, which arises from genuine interest and personal satisfaction, and extrinsic motivation, which is driven by external factors such as grades or career advancement. Research in online learning settings suggests that both forms can support engagement and persistence, though intrinsic motivation tends to produce more sustained effort over time (Hartnett et al., 2011). Within Malaysian higher education, Anthonysamy (2021) observed that motivated students applied more consistent self-regulatory practices in digital learning tasks, and there is broader evidence that adequate motivational support improves course completion. Most Malaysian studies, however, have examined motivation within conventional e-learning settings rather than micro-credential contexts, where the shorter duration and competency-based structure may alter how motivation manifests. Satisfying learners' basic psychological needs, especially autonomy and competence, is central to sustained motivational engagement, as SDT-based research regularly demonstrates across a range of educational settings (Ryan & Deci, 2000; Hartnett et al., 2011). The role of platform design cannot be considered separately from motivation. Students who view a learning platform as useful and easy to navigate are more likely to invest effort in the tasks it presents and maintain participation over time (Teo, 2011; Al-Fraihat et al., 2020). An et al. (2024) showed that technology acceptance mediates the relationship between intrinsic motivation and learning engagement, suggesting that motivational and platform-perceptual pathways to SRL interact rather than operate independently. Amiruddin et al. (2024) similarly found that students' perceptions of their blended learning environment predicted their SRL through technology proficiency, highlighting the layered way in which platform-related perceptions shape learning behaviour. Taken together, these studies make a case for examining motivation and platform perception as interacting influences rather than treating them separately.

Despite these insights, limited empirical work has examined how students' motivation and perceptions of platforms jointly influence SRL in micro-credential settings. Most prior studies have focused on traditional e-learning or massive open online courses (MOOCs), often in Western or non-Malaysian contexts (Ralston, 2021; Ahsan et al., 2023). Consequently, little is known about how these factors interact in micro-credential programs within Malaysia's higher education ecosystem. Addressing this gap, the present study explores how motivation and platform perception predict students' SRL behaviours in UiTM's Kickstart Your Social Media Journey micro-credential course, offering context-specific insights to inform the design of learner-centred digital learning environments.

3. THEORETICAL FRAMEWORK

Building on insights from previous studies, this study proposes that students' motivation and perceptions of the platform are key factors influencing self-regulated learning (SRL) in micro-credential environments. Motivation reflects the internal drive to engage in learning and the perceived value of tasks, encompassing both intrinsic and extrinsic orientations (Ryan & Deci, 2000). Platform perception refers to students' evaluation of the micro-credential platform's usefulness and ease of use, which shapes their willingness to engage actively with the learning environment (Davis, 1989; Teo, 2011).

The theoretical framework declares that higher levels of motivation and positive platform perceptions will positively influence SRL behaviours, including planning, monitoring, strategy use, and reflection (Zimmerman, 2002; Broadbent & Packer, 2021). In turn, effective SRL enables students to manage their learning autonomously, persist in completing tasks, and achieve better learning outcomes in the micro-credential course.



Source: Author (2026)

Fig. 1 Theoretical framework illustrating the relationship between Motivation, Platform Perception, and Self-Regulated Learning (SRL).

Two well-established theoretical frameworks underpin the expected relationships in this study. The first is Self-Determination Theory (SDT; Ryan & Deci, 2000), which holds that when learners' core psychological needs for autonomy, competence, and relatedness are met, they tend to develop genuine interest in their learning rather than engaging out of obligation. This internally driven orientation is, in turn, closely linked to self-regulatory behaviours such as planning, monitoring, and revising one's approach to tasks.

The second is the Technology Acceptance Model (TAM; Davis, 1989), which proposes that a person's willingness to engage with a technology-based system depends largely on whether they find it genuinely useful and easy to use. Applied to micro-credential platforms, TAM suggests that students who view the platform as a practical and accessible tool will invest greater effort and sustain participation over time.

Taken together, these two frameworks suggest that effective self-regulation in digital learning is not purely a personal skill but emerges from the interaction between the learner's motivational states and their perception of the learning environment. This is consistent with Zimmerman's (2002) cyclical model of SRL, which treats the learning context as an active influence on each phase of self-regulation. The following hypotheses were derived from this theoretical basis:

- H1: Student motivation is significantly and positively associated with self-regulated learning in micro-credential courses.
- H2: Platform perception is significantly and positively associated with self-regulated learning in micro-credential courses.
- H3: Motivation and platform perception together significantly predict students' self-regulated learning behaviours.
- H4: Platform perception is a stronger predictor of self-regulated learning than motivation.

4. METHODOLOGY

A quantitative, cross-sectional survey design was used to examine the relationships between platform perception, motivation, and self-regulated learning (SRL) among students enrolled in a micro-credential course. A total of 213 undergraduate students from Universiti Teknologi MARA (UiTM) participated in the Kickstart Your Social Media Journey micro-credential course, representing various stages of completion. Participants were selected through convenience sampling, with the majority being female (66.2%) and UiTM students (99.1%).

Data were collected via an online questionnaire distributed through Google Forms. The instrument comprised three constructs: Platform Perception, Motivation, and Self-Regulated Learning (SRL), each measured with eight items on a five-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree), for a total of 24 items. Composite mean scores were computed for each construct.

Each scale was developed from established validated instruments. The Platform Perception items were drawn from Davis's (1989) TAM scale and subsequently refined by Teo (2011), with items centred on perceived usefulness and ease of use in the context of the micro-credential platform. For Motivation, items were drawn from instruments grounded in Ryan and Deci's (2000) Self-Determination Theory and adapted to online learning contexts following Hartnett et al. (2011), capturing both intrinsic orientations (such as learning for its own sake) and extrinsic orientations (such as performing well to meet external expectations). The SRL items were adapted from Barnard et al.'s (2009) Online Self-Regulated Learning Questionnaire (OSLQ), which covers the four strategy dimensions used in this study: planning, monitoring, strategy use, and reflection.

Items were contextually adapted to the Malaysian micro-credential setting through a review by three subject-matter experts in educational technology, who evaluated content validity and linguistic appropriateness. Minor wording revisions were made based on their feedback. A pilot test was subsequently conducted with 30 students not included in the main sample to assess item clarity and reliability. Pilot results confirmed satisfactory internal consistency across all three constructs (Cronbach's $\alpha > .80$), and no items were removed, establishing face validity and content validity prior to main data collection.

Data analysis was conducted using IBM SPSS Statistics version 30, involving descriptive analysis, Pearson correlation, and multiple regression. Prior to interpreting the regression results, standard regression assumptions were considered. Multicollinearity was assessed using Variance Inflation Factor (VIF) values, with both predictors returning $VIF = 2.966$, well below the threshold of 10, confirming no multicollinearity concern. Given the cross-sectional design and large sample size ($N = 213$), the assumptions of error independence and approximate normality of residuals were considered to be reasonably satisfied. Participation was voluntary, and informed consent was obtained from all respondents.

5. RESULTS

5.1 Descriptive Statistics

The sample consisted primarily of UiTM students (99.1%) with a female majority (66.2%). Most respondents (58.7%) had no prior experience creating social media content. Regarding engagement, 78% of participants spent 1-3 hours per week on the module, indicating moderate participation.

Table 1
Sample Characteristics (N=213)

Variable	Category	Frequency	Percentage (%)
Background	Individual	2	0.9
	UiTM Student	211	99.1
Gender	Female	141	66.2
	Male	72	33.8
Prior Experience Creating Social Media Content	No	125	58.7
	Yes	88	41.3
Average Weekly Hours on this Module	1–2 hours/week	83	39.0
	2–3 hours/week	83	39.0
	4–5 hours/week	26	12.2
	More than 5 hours/week	21	9.4

Source: (Author's own data)

5.2 Reliability Analysis

Reliability analysis was conducted to assess the internal consistency of the measurement scales. All constructs demonstrated good to excellent reliability, with Platform Perceptions ($\alpha = 0.898$), Motivation ($\alpha = 0.923$), and Self-Regulated Learning Strategy ($\alpha = 0.876$) exceeding the recommended threshold of 0.70 (Nunnally & Bernstein, 1994).

Table 2
Reliability Statistics

Variable	No. of Items	Cronbach's Alpha	Interpretation
Platform perceptions	8	0.898	Good
Motivation	8	0.923	Excellent
Self-regulated Learning Strategy	8	0.876	Good

Source: (Author's own data)

5.3 Correlation Analysis

RQ1: To examine the relationships between students' motivation, platform perception, and self-regulated learning (SRL) strategies.

Pearson correlation analysis was conducted to examine the relationships among platform perceptions, motivation, and self-regulated learning strategies. As shown in Table 3, all correlations were positive and significant at the 0.01 level (2-tailed). Platform perceptions showed a very strong positive correlation with motivation ($r = .814$, $p < .001$) and a strong positive correlation with self-regulated learning strategies ($r = .681$, $p < .001$). Likewise, motivation was strongly correlated with self-regulated learning strategies ($r = .677$, $p < .001$).

These results indicate that students who perceive the learning platform more positively tend to be more motivated and more likely to engage in SRL behaviours such as planning, monitoring, and reflecting on their learning progress. The strong association between motivation and platform perception highlights how a well-designed, user-friendly platform can enhance learners' intrinsic and extrinsic motivation, thereby encouraging more active engagement in self-directed learning.

Table 3
Descriptive Statistics and Correlation Matrix

Variable	Mean	Std. Deviation	1	2	3
Platform perceptions	4.019	0.449	—		
Motivation	4.028	0.499	.814**	—	
Self-regulated Learning Strategy	3.957	0.471	.681**	.677**	—

Note. N = 213. Correlation is significant at the 0.01 level (2-tailed).
Source: (Author's own data)

5.4 Regression Analysis (RQ2 and RQ3)

RQ2: To determine the extent to which motivation and platform perception predict students' self-regulated learning (SRL) behaviours.

A multiple regression analysis was conducted with self-regulated learning (SRL) strategies as the dependent variable and platform perception and motivation as predictors. The model was statistically significant, $F(2, 210) = 108.47$, $p < .001$, explaining 50.8% of the variance in SRL ($R^2 = .508$). Both predictors were significant and positive: platform perception ($\beta = .386$, $t = 4.64$, $p < .001$) and motivation ($\beta = .362$, $t = 4.34$, $p < .001$). These findings indicate that students who perceive the learning platform positively and are motivated tend to engage more actively in SRL behaviours such as planning, monitoring, and reflecting on their learning progress.

Table 3
Descriptive Statistics and Correlation Matrix

Variable	B	Std. Error	β	t	Sig.	VIF	95% CI
Constant	.949	.208	—	4.572	< .001	—	[0.54, 1.36]
Platform perceptions	.406	.087	.386	4.637	< .001	2.966	[0.24, 0.58]
Motivation	.342	.079	.362	4.342	< .001	2.966	[0.19, 0.49]

Note. $R^2 = .508$, Adjusted $R^2 = .503$, $F(2, 210) = 108.471$, $p < .001$.
Source: (Author's own data)

RQ3: To identify which factor more strongly influences students' engagement in self-regulated learning (SRL) within the micro-credential learning environment.

Comparative analysis of standardised beta values revealed that platform perception ($\beta = .386$) is a slightly stronger predictor of SRL than motivation ($\beta = .362$). Platform Perception emerged as a slightly stronger predictor, suggesting that a well-designed, user-friendly learning platform contributes marginally more to SRL behaviours than motivation alone. Nonetheless, both personal (motivational) and technological (platform) factors interact to enhance learners' capacity for self-directed learning.

5.5 Summary of Findings

The findings collectively highlight that both motivation and platform perception play significant roles in fostering SRL in micro-credential environments. Overall, the results demonstrate that:

- Platform Perception, Motivation, and SRL are strongly and positively interrelated.
- Both independent variables significantly predict SRL, explaining over half of its variance.
- Platform Perception is a slightly stronger predictor than Motivation.

6. DISCUSSION

Overall, the findings are consistent with the theoretical expectations set out in this study. All four hypotheses were confirmed to varying degrees. Motivation and platform perception each showed strong and statistically significant correlations with SRL ($r = .677$ and $r = .681$, respectively), providing support for H1 and H2 and are in line with a well-established body of work showing that both motivational orientation and technology perceptions shape how learners engage with online study (Ryan & Deci, 2000; Davis, 1989; An et al., 2024). The regression model explained 50.8% of the variance in SRL ($F(2, 210) = 108.47, p < .001$), confirming H3 and indicating that these two predictors together account for a substantial share of the differences in students' self-regulatory behaviour. H4 received tentative support: platform perception ($\beta = .386$) proved marginally more influential than motivation ($\beta = .362$), though the gap between them was narrow.

The slight advantage of platform perception over motivation as a predictor of SRL warrants further consideration. This finding suggests that students' experiences with the learning platform may be as influential as their personal motivation in determining the use of self-regulatory strategies. In micro-credential settings, where courses are brief and self-paced, the absence of structured scaffolding increases the importance of platform usability. A platform that is difficult to navigate or lacks clarity can diminish engagement, regardless of initial motivation. This aligns with An et al.'s (2024) finding that technology acceptance mediates the relationship between intrinsic motivation and learning engagement, as well as Amiruddin et al.'s (2024) evidence that platform perceptions predict online SRL through technology proficiency. The strong correlation between motivation and platform perception ($r = .814$) observed in this study suggests these factors may reinforce each other. An accessible and effective platform can sustain students' motivational investment, while higher motivation may, in turn, enhance students' evaluation of the platform. This mutual reinforcement is consistent with Zimmerman's (2002) conceptualisation of SRL as a cyclical, environment-responsive process.

A few limitations of this study deserve honest acknowledgement. The sample was drawn using convenience sampling from a single micro-credential course at a single institution, which limits the generalizability of the findings. Researchers working in this area would benefit from using probability-based sampling methods and collecting data across multiple institutions, course types, and disciplines. Because the design was cross-sectional, the relationships observed are correlational rather than causal: we cannot, for instance, determine whether positive platform perceptions cause stronger SRL or whether students who already self-regulate well are simply more likely to rate the platform favourably. Longitudinal designs that track learners over a course of study would shed more light on how these dynamics develop. Factors not measured in this study, such as digital literacy levels, academic self-efficacy, the quality of peer interaction on the platform, and the extent of instructor involvement, are likely to contribute to SRL as well and would be worth including in future work. The predominantly female sample (66.2%) also raises questions about whether the findings generalise equally across genders, though this reflects the broader demographic profile of UiTM's student population.

7. CONCLUSION

This study advances research on micro-credential learning in Malaysia by presenting findings grounded in student data and relevant to educational practice. As one of the first exploratory studies to investigate the interplay among motivation, platform perception, and SRL, it offers foundational evidence to guide improvements in digital learning design and learner engagement strategies. The results indicate that institutions should prioritise platform usability, interactivity, and feedback mechanisms, and incorporate motivational features such as gamified progress, social learning, and recognition to sustain engagement. These insights are valuable for educators, instructional designers, and policymakers aiming to strengthen the implementation of micro-credentials and improve learner retention in higher education.

In conclusion, this study demonstrates that both personal and technological factors shape self-regulated learning. When students' motivation aligns with a positive perception of the platform, their capacity for independent learning increases substantially. The study provides a starting point for future work, particularly longitudinal and multi-site investigations that can build on these findings and deepen understanding of how Malaysian students engage with digital micro-credential environments.

8. ACKNOWLEDGEMENTS

The authors would like to express their sincere appreciation to Universiti Teknologi MARA (UiTM) for providing the institutional support and platform for the development and implementation of the Micro-Credential Learning initiative among UiTM students. Special thanks are also extended to all members of the research team for their dedication, insightful contributions, and collaborative efforts, which have greatly enriched this study and ensured its successful completion.

9. FUNDING

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

10. AUTHORS' CONTRIBUTIONS

Ima Shanaz Wahidin led the conceptualisation and design of the study's methodology, supervised the overall research process, and prepared the initial manuscript draft. Riza Emifazura Jaafar contributed to the literature review and validation and provided critical revisions and editing of the manuscript. Nor Tasnim Syahera Rasak and Noryanne Amer were involved in data collection, validation, and data analysis. All authors participated in the data collection process and approved the final manuscript version for submission.

11. CONFLICT OF INTEREST DECLARATION

We certify that the article is the Authors' and Co-Authors' original work. The article has not received prior publication and is not under consideration for publication elsewhere. This research/manuscript has not been submitted for publication, nor has it been published in whole or in part elsewhere. We attest that all Authors have contributed significantly to the work, the validity and legitimacy of the data, and the interpretation of the data for submission to IJELHE.

12. DECLARATION OF GENERATIVE AI IN THE WRITING PROCESS

During the preparation of this work, the authors used Claude (Anthropic) to improve the manuscript's readability, language clarity, and structural organisation, including assistance with grammar refinement, sentence flow, and academic phrasing. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the publication's content.

13. DATA AVAILABILITY / SUPPLEMENTARY MATERIALS

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

14. REFERENCES

- Ahsan, K., Akbar, S., Kam, B., & Abdulrahman, M. D.-A. (2023). Implementation of micro-credentials in higher education: A systematic literature review. *Education and Information Technologies*, 28(10), 13505–13540. <https://doi.org/10.1007/s10639-023-11739-z>
- Al-Fraihat, D., Joy, M., & Sinclair, J. (2020). Evaluating e-learning systems' success: An empirical study. *Computers in Human Behaviour*, 102, 67–86. <https://doi.org/10.1016/j.chb.2019.08.004>
- Amiruddin, A., Sunardi, S., & Setialaksana, W. (2024). Students' technological skills and attitudes toward HyFlex learning: The mediating roles of online self-regulated learning, blended-learning perception, and preferred learning modes. *Frontiers in Education*, 8. <https://doi.org/10.3389/educ.2023.1258298>
- An, F., Xi, L., & Yu, J. (2024). The relationship between technology acceptance and self-regulated learning: The mediation roles of intrinsic motivation and learning engagement. *Education and Information Technologies*, 29(3), 2605–2623. <https://doi.org/10.1007/s10639-023-12102-y>
- Anthonyamy, L., Koo, A.C. & Hew, S.H. Self-regulated learning strategies in higher education: Fostering digital literacy for sustainable lifelong learning. *Educ Inf Technol* 25, 2393–2414 (2020). <https://doi.org/10.1007/s10639-020-10201-8>
- Barnard, L., Lan, W. Y., To, Y. M., Paton, V. O., & Lai, S.-L. (2009). Measuring self-regulation in online and blended learning environments. *The Internet and Higher Education*, 12(1), 1–6. <https://doi.org/10.1016/j.iheduc.2008.10.005>
- Broadbent, J., & Packer, T. (2021). Self-regulated learning strategies and academic achievement in online higher education. *Internet and Higher Education*, 50, 100808. <https://doi.org/10.1016/j.iheduc.2021.100808>
- Brown, M., Nic Giolla Mhichíl, M., Beirne, E., & Mac Lochlainn, C. (2021). *The global micro-credential landscape*. Dublin City University. <https://doi.org/10.56059/jl4d.v8i2.525>
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>
- Hartnett, M., St. George, A., & Dron, J. (2011). Examining motivation in online distance learning environments. *International Review of Research in Open and Distributed Learning*, 12(6), 20–38. <https://doi.org/10.19173/irrodl.v12i6.1030>
- Malaysian Qualifications Agency. (2020). *Guidelines on micro-credentials*. Putrajaya: MQA.
- McGreal, R., & Olcott, D. (2022). A strategic reset: micro-credentials for higher education leaders. *Smart Learning Environments*, 9(9). <https://doi.org/10.1186/s40561-022-00190-1>
- Ministry of Higher Education Malaysia. (2021). *Framework for micro-credentials in Malaysian higher education*. Putrajaya: MOHE.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). McGraw-Hill.
- Oliver, B. (2019). *Making micro-credentials work for learners, employers and providers*. Deakin University.
- Ralston, S. J. (2021). Higher education's microcredentialing craze: A postdigital-Deweyan critique. *Postdigital Science and Education*, 3(1), 83–101. <https://doi.org/10.1007/s42438-020-00121-8>
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68–78. <https://doi.org/10.1037/0003-066X.55.1.68>

Tamoliuè, G., Volungeviciene, A., & Tereseviciene, M. (2023). Micro-credentials for lifelong learning and employability: A systematic review. *Sustainability*, 15(3), 2084. <https://doi.org/10.3390/su15032084>

Teo, T. (2011). Factors influencing teachers' intention to use technology: Model development and test. *Computers & Education*, 57(4), 2432–2440. <https://doi.org/10.1016/j.compedu.2011.06.008>

Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory Into Practice*, 41(2), 64–70. https://doi.org/10.1207/s15430421tip4102_2



© 2026 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY-NC 4.0) license (<https://creativecommons.org/licenses/by-nc/4.0/>).